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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,702	05/26/2000	Gary L. Hensley	1971TC-44193	7683

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Tim Cook
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Houston, TX 77208-1389

EXAMINER

RAPP, CHAD

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/579,702

Applicant(s)

HENSLEY ET AL.

Examiner

Chad Rapp

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-26 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2 and 3</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 1-26 are presented for examination.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-18 and 26, are drawn to a drilling mud reclamation system, classified in class 700, subclass 273.
 - II. Claims 19-25, are drawn to method of determining the effectiveness of a centrifuge, classified in class 494, subclass 1.
3. The inventions are distinct, each from the other because of the following reasons:
Group I deals with a mud reclamation system and its various parts. Group II deals with a measuring effectiveness of a centrifuge based on cost of centrate and an economic value.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Tim Cook on February 9, 2004 a provisional election was made with traverse to prosecute the invention of the drilling mud reclamation system, claims 1-18 and 26. Affirmation of this election must be made by applicant in replying to this Office action. Claim 19-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The abstract of the disclosure is objected to because it contains too many words(must be <150 words). Correction is required. See MPEP § 608.01(b).

7. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.

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- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

8. The CIP application need to have a section heading.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-18 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5 "the heavy weight solid components" should be changed to "heavy weight solid components".

In claim 2, "the respective inputs" should be changed to "respective inputs".

In claim 10, line 2 "the respective inputs" should be changed to "respective inputs".

In claim 13, line 2 "the maximum removal" should be changed to "maximum removal".

In claim 26, line 4 "the heavy weight solid components" should be changed to "heavy weight solid components".

There is insufficient antecedent basis for the limitations in the above claims.

Allowable Subject Matter

11. Claims 3, 4, 7, 10 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergey(2,870,990) in view of Wardwell et al.

Bergey(2,870,990) teaches the claimed invention (claim 1) substantially as claimed including a drilling mud reclamation system comprising:

a. A mud inlet line adapted to be connected to a source of solids-laden drilling mud is taught as a line(28) which is connected to the mud pit(20) and first centrifuge(30)(col. 2 lines 40-48 and fig. 1);

b. A first stage centrifuge provided with the mud from the source for separating the heavy weight solid components from the mud and forming a first stage liquid discharge is taught as first centrifuge discharges solids(22) and effluent(col. 2 lines 40-69);

c. A second stage centrifuge provided with the first stage liquid discharge for removing lighter weight solid components in the first stage liquid discharge and for forming a second stage liquid discharge and a second stage solids discharge is taught as a second centrifuge

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(38) which receives the effluent from the first centrifuge(30). Second centrifuge discharges solids(40) and effluent(42)(col. 2 line 68 to col. 3 line 2).

Bergey(2,870,990) teaches the above listed details of the independent claim 1, however, Bergey(2,870,990) does not teach: a mass flow sensor for measuring weight of the second stage solids discharge and a flow rate sensor for measuring the flow rate of first stage liquid discharge through the second stage centrifuge.

Wardwell et al. teaches:

a. A mass flow sensor for measuring weight of the second stage solids discharge is taught as mass flow rate of output stream(cake) from a centrifuge(col. 3 lines 10-27 and col. 4 lines 34-36);

b. A flow rate sensor for measuring the flow rate of first stage liquid discharge through the second stage centrifuge is taught as volumetric flow rate of output stream(effluent) of centrifuge(col. 3 lines 10-27 and col. 4 lines 34-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wardwell et al. because the Wardwell et al. system provides a comprehensive computerized control system for operating, controlling and monitoring centrifuges, volumetric flow rates and mass flow rates. These monitored parameters provide precise and real time control automatically by the computer system.

As to claim 8,

Bergey(2,870,990) teaches:

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a. Wherein the second stage centrifuge forms a second stage solids discharge is taught as the solids to waste(40)(see figure).

Wardwell et al. teaches:

a. The mass flow sensor communicates with the second stage solids discharge is taught as the mass flow sensor communicates with computer and computer communicates with centrifuges(col. 3 lines 10-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wardwell et al. because the Wardwell et al. system provides a comprehensive computerized control system for operating, controlling and monitoring centrifuges, volumetric flow rates and mass flow rates. These monitored parameters provide precise and real time control automatically by the computer system.

14. Claims 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergey(2,870,990) in view of Wardwell et al. and further in view of Wiemers et al.

Bergey(2,870,990)and Wardwell et al. teach the claimed invention (claim 1) see paragraph number 13 above.

As to claim 2, Wiemers et al. teaches that including a first and second stage pumps connected to the respective inputs of said first and second stage centrifuges is taught as the first pumps mud from mud tank to through mass flow meter to mixing unit to centrifuge(27). Even though a second centrifuge is not shown nor second pump it would have been obvious to one of

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ordinary skill in the art at the time the invention was used or made because it is known that a effluence conditioning system can have one or more centrifuges. So, if you have additional centrifuges you would need additional pumps.

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wiemers et al. because Wiemers et al. system is a effluence conditioning system. It provides an automated closed loop drilling system to reduce price by reusing conditioned drilling mud.

As to claim 5,

Wardwell et al. teaches:

- a. A liquid receiving tank is taught as a pool(col. 12 lines 20-21);
- b. A liquid level indicator for indicating liquid level in the liquid receiving tank is taught as a transducer(col. 12 lines 20-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wardwell et al. because mass flow is used to control the system more efficiently and can provide savings calculations.

Wiemers et al. teaches :

- a. A weight sensor to measure the weight of the liquid in the tank is taught as a weight of drilling fluid tank is computed(col. 7 lines 19-22 and fig. 5b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the

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teachings or Wiemers et al. because measuring the weight allows the system to compute a cost saving.

As to claim 6, Wardwell et al. teaches wherein the mass flow sensor is adapted for a determination of the difference in solids into and out of the second stage centrifuge is taught as mass flow is measured in input and output streams, so a difference can be obtained(col. 3 lines 10-27 and col. 4 lines 29-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wardwell et al. because the Wardwell et al. system provides a comprehensive computerized control system for operating, controlling and monitoring centrifuges, volumetric flow rates and mass flow rates. These monitored parameters provide precise and real time control automatically by the computer system.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergey(2,870,990) in view of Wardwell et al. and further in view of Roff et al.

Bergey(2,870,990)and Wardwell et al. teach the claimed invention (claim 1) see paragraph number 13 above.

As to claim 9, Roff teaches that further comprising a cuttings drier to receive the second stage solids discharge and to remove liquid from the second stage solids discharge is taught as a drier(col. 3 lines 27-38 and fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Roff

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because Roff system disclose a closed loop drilling med system. The system processes the drilling mud to separate the cuttings from the effluent so the expensive fluid can be reused and sent back to the drilling well site.

16 Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergey(2,870,990) in view of Wardwell et al. and further in view of Phillips et al.

Bergey(2,870,990)and Wardwell et al. teach the claimed invention (claim 1) see paragraph number 13 above.

As to claim 11, Philips et al. teaches that further comprising a central processor for monitoring and controlling the operation of the first and second stage centrifuges is taught as controlling and monitoring centrifuge (col. 2 lines 1-12).

It would have been obvious to one of ordinary skill in the art at the time the invention wad made or used to modify the teachings of Bergey(2,870,990) with the teachings of Phillips et al. because the Phillips system computer controls centrifuges to maintain the system in the predetermined optimum operating conditions.

17. Claims 12-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergey(2,870,990) in view of Wardwell et al. and further in view of Wiemers et al. and further in view of Phillips et al.

Bergey(2,870,990)and Wardwell et al. teach the claimed invention (claim 1) see paragraph number 13 above.

As to claim 12, Phillips et al. teaches further comprising a central processor for monitoring and controlling the operation of the first and second stage pumps is taught as controlling and monitoring fluid pump rate(col. 1 lines 30-47).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Phillips et al. because the Phillips system computer controls pumps to maintain the system in the

As to claim 13, Phillips et al. teaches wherein the central processor controls the operation of the second stage pump at the point in its operational characteristic for the maximum removal of lighter weight solid components from the drilling mud is taught as maximum solids separation(col. 1 lines 37-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Phillips et al. because the Phillips system computer controls the maximum separation to allow the drilling fluid to be reused. The maximum removal allows the best possible drilling mud to be reused. Also the cuttings are more easily disposed of, which saves money.

As to claim 14, Wiemers et al. teaches that further comprising a first mud flow sensor on the first stage pump and a second mud flow sensor on the second stage pump is taught as pumps are on the conduit and flow rate meter is on the conduit(col. 2 lines 66-67 and col. 4 lines 43-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wiemers et al. because Wiemers et al. system is a effluence conditioning system. It provides an automated closed loop drilling system to reduce price by reusing conditioned drilling mud.

As to claim 18,

Wiemers et al. teaches :

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a. Means for determining the quantity of high gravity solids removed by the first stage centrifuge is taught as monitoring the conducted flow and indicating mass flow rate of the conducted flow of the aqueous effluence and determining the mass flow rate of the suspended solids in the conducted flow from the indicated mass flow of the conducted flow(col. 2 lines 8-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Wiemers et al. because Wiemers et al. system is a effluence conditioning system. It provides an automated closed loop drilling system to reduce price by reusing conditioned drilling mud.

Phillips et al. teaches :

a. Wherein the central processor is adapted to vary the bowl speed of the first stage centrifuge to maximize the high solids content of the first centrifuge solids discharge is taught as computer controls speed of bowl(abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Bergey(2,870,990) with the teachings of Phillips et al. because the Phillips system computer controls the maximum separation to allow the drilling fluid to be reused. The maximum removal allows the best possible drilling mud to be reused. Also the cuttings are more easily disposed of, which saves money.

Claim Rejections - 35 USC § 103

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18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wardwell et al. in view of Wiemers et al.

Wardwell et al. teaches the claimed invention (claim 1) substantially as claimed including a drilling mud reclamation system comprising:

a. A mass flow sensor for measuring weight of the second stage solids discharge is taught as mass flow rate of output stream(cake) from a centrifuge(col. 3 lines 10-27 and col. 4 lines 34-36);

b. A flow rate sensor for measuring the flow rate of the first stage liquid discharge through the second stage centrifuge is taught as volumetric flow rate of output stream(effluent) of centrifuge(col. 3 lines 10-27 and col. 4 lines 34-36).

Wardwell et al. teaches the above listed details of the independent claim 1, however, Wardwell et al. does not teach: a central processor adapted to receive signals from the mass flow sensor and from the flow rate sensor.

Wiemers et al. teaches :

a. A central processor adapted to receive signals from the mass flow sensor and from the flow rate sensor is taught as instruments provide output to the controller(col. 4 lines 54-57).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Wardwell et al. with the teachings of Wiemers et al. because Wiemers et al. system is an effluent conditioning system. It provides an automated closed loop drilling system to reduce price by reusing conditioned drilling mud.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Rapp whose telephone number is (703)306-4528. The examiner can normally be reached on Mon-Fri 11:00-7:00.

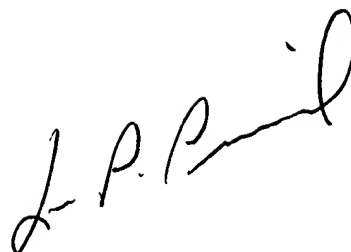
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (703)308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chad Rapp
Examiner
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cjr

A handwritten signature in black ink, appearing to read "L. P. Picard". The signature is written in a cursive, flowing style with a large, looped "P" and a long, sweeping underline.

**LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**